Department of Energy

Technical Standards Program Procedures

Contents

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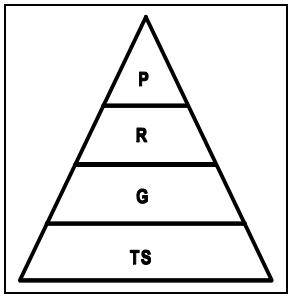
1. The Department of Energy (DOE) Technical Standards Program (TSP)

The DOE Directives System includes a hierarchy of documents that describe how the Department performs work. There are four levels of documents in the hierarchy. The top level is policy. Policy documents (P) describe the philosophy and fundamental values of the Department—the "why we do it" statements. The next level, requirements documents (R), such as Orders and rules, identifies "what must be done." These documents set expectations or specify criteria that must be met to ensure safe and reliable facility operations. They do not provide information on how to do work. Guides (G), the next level, provide general information and methodologies that DOE finds acceptable to meet the Department's requirements. In practice, the guides provide a link between the requirements and technical standards. The bottom level, technical standards (TS), provides specific methods and techniques on "how to" implement the Department's requirements. Technical standards are the foundation upon which the DOE documents hierarchy is based. The activities of the TSP are described in the Technical Standards Program Procedures (TSPPs) and the latest revisions of DOE Order (O) 252.1, "Technical Standards Program." and Guide (G) DOE G-252.1-1, “Technical Standards Program Guide."



Technical standards are available from a number of different sources. For DOE, the preferred source of technical standards is from the non-Government standards community.

> [Note that throughout the TSPPs, two sets of terms are used interchangeably: (1) “non-Government standards” and “voluntary consensus standards" (VCSs) are synonymous with "technical standards,” and (2) “non-Government standards bodies” and “voluntary consensus standards bodies” are synonymous with "Standards Development Organizations" (SDOs). Also note that a technical standard developed by and for DOE under the TSP is referred to as a "DOE Technical Standard" and includes DOE Standards, DOE Specifications, DOE Handbooks, and DOE Technical Standards Lists (TSLs).]

The non-Government standards community includes international and national standards development organizations, such as the International Organization for Standardization (ISO), the International Electrotechnical Commission (IEC), the Institute of Electrical and Electronics Engineers (IEEE), the American Society for Testing and Materials (ASTM), the American Nuclear Society (ANS), and the American Society of Mechanical Engineers (ASME). Other sources of technical standards include Federal standards, such as those issued by the General Service Administration (GSA), and Government standards, which are prepared and maintained by agencies of the Federal Government (i.e., Department of Defense, etc.).

Technical standards are used to transfer technology and standardize work processes to produce consistent acceptable results. They provide specific methods and techniques on “how to” implement DOE’s requirements. The methods and techniques addressed in

technical standards involve a range of activities, including the following: (1) common and repeated use of rules, conditions, guidelines or characteristics for products or related processes and production methods, and related management systems practices, and (2) the definition of terms; classification of components; delineation of procedures; specification of dimensions, materials, performance, designs, or operations; measurement of quality and quantity in describing materials, processes, products, systems, services, or practices; test methods and sampling procedures; or descriptions of fit and measurements of size or strength.

Through the proper selection and use of technical standards, DOE and its contractors can avoid costly duplication of effort and rework. Consequently, when searching for and selecting the right technical standards for a given application, DOE/contractor personnel are to first make use of existing VCSs or work with the appropriate SDO to have a VCS developed or revised to meet DOE's needs. If no existing VCS is adequate, an existing Federal or Government standard that meets the need should be used. When neither an adequate VCS or Government standard exists nor can be developed on a schedule consistent with Department priorities, a DOE Technical Standard should be prepared. However, when a DOE Technical Standard is developed, DOE and its contractors should coordinate with an appropriate SDO on converting the new DOE Technical Standard to a VCS. This approach conforms with Federal requirements related to technical standards development and use established in Public Law (PL) 104-113 (15 U.S.C. 272) and Federal policy described in Office of Management and Budget (OMB) Circular A-119.

It is important to note that technical standards do not become requirements within DOE simply because the standards exist. Technical standards become mandatory documents when (1) they are cited as a requirement in a DOE policy (P) or requirements (R) document; (2) they are identified as mandatory in DOE-approved contractor documents, such as safety analysis reports, S/RIDs, and sets of "work-smart" standards; or (3) they are identified as mandatory standards in contractual agreements between DOE and its contractors.

The TSP serves as an integral element of DOE's management systems - part of the infrastructure supporting DOE's Integrated Safety Management System (ISMS). DOE Technical Standards Program interfaces are shown in Figure 1 and discussed below. The Department Standards Executive, designated in accordance with OMB Circular A-119, directs implementation of the Department's policy on the development and use of technical standards. In this role, the Department Standards Executive also represents DOE's interests in Federal agency standardization activities coordinated by the Interagency Committee on Standards Policy (ICSP).

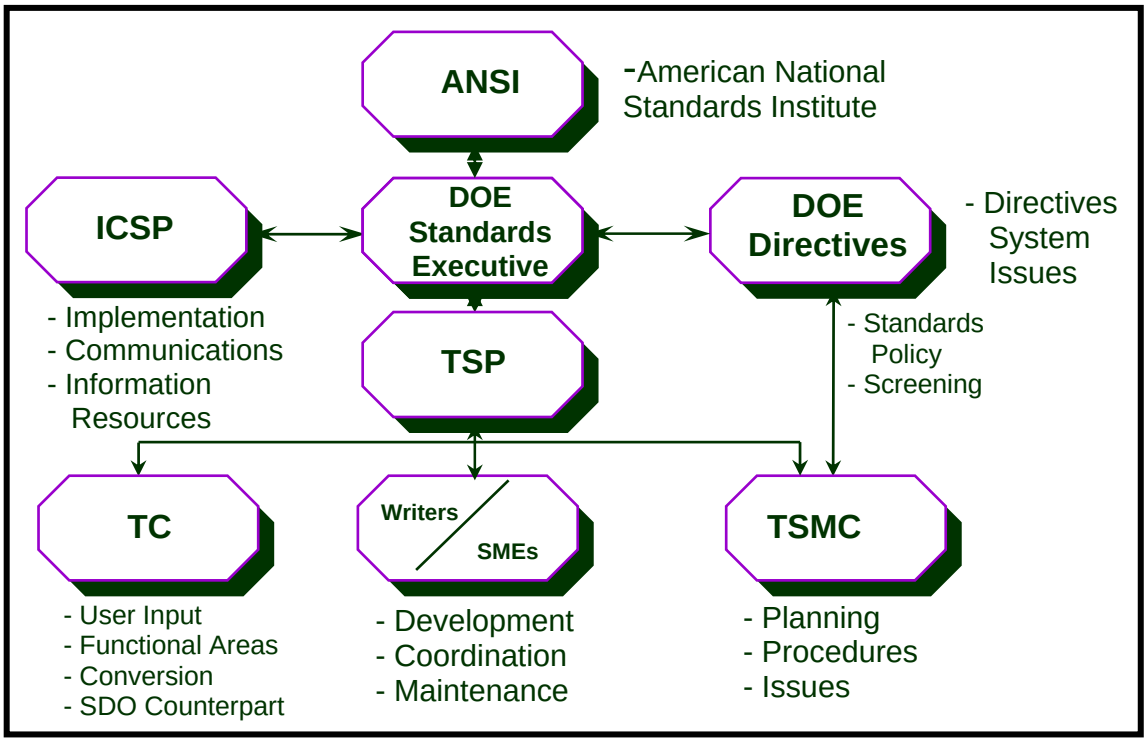


Figure 1. DOE Technical Standards Program Interfaces

The DOE TSP Manager provides leadership and management support for the Technical Standards Program Office (TSPO), working through a network of Technical Standards Managers, (organized as the Technical Standards Managers' Committee TSMC) and a system of DOE Topical Committees headed by designated Chairpersons. The TSMC represents key DOE Headquarters program offices, DOE operations and field offices, and contractor organizations. The Program Manager brings focus, continuity, and purpose to the program; concurrently, the TSPO and TSMC act as a clearinghouse for standards information, promote participation of individuals in VCS work, identify and respond to standards needs, provide information on DOE Technical Standards initiatives and relevant VCS work, and expand standards awareness through education and other outreach programs

DOE Headquarters, field, and contractor organizations rely on the expertise and services of the TSPO and TSMC to meet their program responsibilities as either Preparing Activities (develop/maintain technical standards) or Review Activities (assess the adequacy of technical standards for meeting identified needs). Overall coordination of specific technical standards issues both within DOE and directly with the SDO community can also be conducted through designated DOE topical committees recognized under the TSP. These groups are usually composed of subject matter experts (SMEs) from various DOE/contractor organizations and organized under a single chairperson, but they can be linked to other Federal and industry groups, as well as SDOs. Topical committees generally function independently under the broad recognition of the TSP; they can be called upon to support specific technical standards needs within the Department and use the TSP forum to bring forward important technical standards issues for consideration. The TSP is a Department-

wide effort that crosscuts all organizations and disciplines. Information on the TSP can be electronically accessed at the following Internet address (URL):

http://www.hss.energy.gov/nuclearsafety/ns/techstds/

In addition, the American National Standards Institute has developed the National Standards Systems Network (NSSN), a global information system on international, regional, and domestic technical standards. The NSSN can be electronically accessed at the following Internet address (URL):

http://www.nssn.org/

Technical standards provide a practical solution to the Department's challenge to safely and reliably manage and operate its facilities at reasonable cost. Through them, the technologies of industries and governments worldwide are available to DOE. Technical standards are the repository for international experience and knowledge. The TSP links the Department to this repository.

2. Technical Standards Program Procedures (TSPPs)

The DOE TSPPs are a set of procedures developed jointly by the DOE TSP Manager, the TSPO, participating TSMs, and associated DOE Topical Committee Chairpersons and Steering Committee members. Revisions and updates to the TSPPs may be proposed by any of the TSP participants, and may stem from operational necessities, service needs, process improvement analyses, customer suggestions, and changes in guidance and requirements (such as those stemming from PL 104-113 and OMB A-119 revisions). Proposed changes to the TSPPs are submitted for TSMC preview, reviewed at TSMC meetings, and voted upon for approval. Review cycles are conducted on at least an annual basis, and more frequently based on need. The TSPPs are consensus documents outlining how the TSP constituency has determined to conduct its business: performing its missions and functions; providing necessary services; meeting Federal and DOE requirements; interacting and coordinating with DOE and contractor organizations, other Federal agencies, industry, and national and international SDOs.

The TSPPs themselves are not requirements, and do not contain requirements, but they do reflect requirements from the Federal and DOE levels. For instance, OMB A-119 requires Federal agencies to report participations with SDOs - the TSPPs describe the agreed upon process for how the DOE TSPO and TSMs go about collecting, consolidating, and reporting such information. They incorporate OMB-approved forms for TSMs to use to collect data. They describe how the TSPO publishes and uses the data. The procedures are flexible and very amenable to change. They are process and system-oriented, but do provide considerable detail where warranted.

The TSPPs are oriented towards supporting the Department's TSMs and the TSPO in carrying out their responsibilities to promote the preferential use of VCSs by DOE, and supporting the development and maintenance of needed internal standards. They are also often used in conjunction with the TSP Guide and "Tool Kits", by Preparing Activities to originate, process, and gain approval of a DOE Technical Standard. The TSPPs provide the TSPO with efficient and effective means to provide services, data, and information; develop and maintain DOE Technical Standards, and establish topical committees. They are subjected to continuous improvement based on frequent use, experience and lessons learned.

The TSPPs also contain "flow maps" or "process charts" and summaries to provide simplified overviews of TSP processes. In conjunction with an experienced TSPO and TSMs, they provide the means for DOE to implement Federal and DOE policy and requirements, and establish essential services and processes for DOE's technical standards needs.